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Toward an Economic and Environmental Sustainability of the Health Systems of Western Countries

Andrés J. Ursa Herguedas

Abstract

One of the pillars of well-being, together with education and social coverage, is health. The various health systems currently existing in the world, both in advanced countries and in developing countries, do not comply with the principle of equity and, therefore, the Charter of Human Rights, by not universally covering the entire population. The great economic differences continue to feed off the poorest. The causes of mortality are still different between both worlds. The objective of this contribution is to sensitize political leaders at the international level, so that they adopt global agreements on the adequate use of energy, access to health and universal education to benefit the planet and its population. Integrative medicine, implemented in advanced and developing countries, with the use of conventional and unconventional treatments, the latter endorsed with scientific studies, has shown in recent decades that increases the preventive and curative possibilities, reduces the effects side effects of medication and contributes to environmental and economic sustainability. International health agencies should consider the proposal of incorporating integrative medicine into health systems and allocate financial resources to validate those techniques or procedures that do not yet enjoy scientific evidence. The population and political leaders must be sensitized by the state through which the planet Earth passes, in order to take large-scale measures to address socio-economic and environmental crises.

Keywords: welfare state, universal health, integrative medicine, environmental sustainability, climate change

1. Introduction

The pillars of well-being, centered on education, health and social achievements, have been a breakthrough in most developed countries. Faced with these real advantages, there is a series of uncertainties such as climate change, the instability of international politics that may be associated with an economic recession, the aging of the population and migratory flows, which threaten not only the stability of the system based on capitalism but the entire planet.

From the Industrial Revolution to the present day scientific and technical advances have contributed to social welfare, although there were many adverse

political and economic scenarios to reach the current situation or according to the phrase of the Swiss economist Simonde de Sismondi “Production increases, while welfare decreases” [1].

The new industrial paradigm needed fossil fuels to be able to carry out all its activity. The traditional coal was introduced into oil and in the twentieth century nuclear energy. The “black gold” became one of the most precious assets on the planet, to the point of influencing the global economy and being able to cause wars. What has been produced for thousands of years in the terrestrial and marine sub-soil, is consumed in a few decades, sends its combustion gases to the atmosphere, with the consequent environmental impact.

The reports on the production of energy by the fission of the atom were favorable for a good part of the scientific community. Disasters such as Chernobyl (Ukraine, 1986) and Fukushima (Japan, 2011), had to happen for politicians to reflect on and close the nuclear power plants in many countries.

In all these years there have been great advances in terms of food and nutrition. The progressive increase of the world population started speculation in food policy. Despite the intervention of international organizations such as the United Nations (UN) or the United Nations Food and Agriculture Organization (FAO), a good part of the population continues to go hungry, despite the abundance of food.

The overproduction of food to provide food to all the inhabitants of the planet goes through monocultures, the creation of transgenic products, the use of insecticides and chemical fertilizers. The earth is extracted more than what is entered. The literally dead earth is not able to withstand the torrents of water that are happening due to climate change and is carried by rivers to the sea [2]. Nutrients from plant-derived foods obtained intensively, as well as farm animals for human consumption, may not be as healthy as you would like them to be.

Many of the best fishing grounds of the entire planet have been overexploited and are on the verge of disappearing if no political measures are taken based on scientific reports [3]. Industrial and urban waste ends up in the sea, returning through the food chain to the humans themselves. Suffice it to mention the concentration of mercury and other heavy metals in the fish that occupy the top of the food chain or the microplastics found in fish extracted from the sea.

In recent decades there has been an increase in the number of diseases, at least in the West, with a high incidence of cancer [4] to the point that it is estimated that it will surpass cardiovascular diseases in the near future. There has been progress in the treatment of cancer, but not in prevention, so their numbers will continue to rise. The prevention of cancer is to adopt a healthy lifestyle, but this is not always enough if you live in a city contaminated by road traffic, noise, stress, etc.

The appearance of new diseases may be influenced and/or associated with the alteration of the natural environment produced by humans. It will be necessary to update the human pathology books and adapt the chapters to the new situation and create new ones if new diseases are described.

2. Health sciences at the service of humanity

2.1 From Hippocratic medicine to current health sciences

The considered “Father of medicine”, Hippocrates, of the Greek island of Cos and his followers laid the foundations of current medicine, distinguishing between the magical-empirical and the scientific. Hippocratic doctors had the merit of considering medicine as a “technical” knowledge (*ars medica*) based on scientific knowledge of nature (physiology) [5]. In the *Corpus Hippocraticum*, set of the 53

anonymous writings, the Hellenic medical knowledge of the fifth century AC is collected, up to six centuries later [5]. In **Figure 1** you can see one of the representations of Hippocrates.

Of the diverse ancient cultures, the knowledge of the Egyptians on medicine, collected in the different papyri (Ebers, Smith, Hearst, etc.), dating from 1900 BC to 1200 BC [6].

In the East, the medicine of ancient Chinese, based on Taoism (see sign in **Figure 2**), considered the principles of yin and yang, as well as the elements water, earth, fire, wood and metal, as the basis of their preventive and therapeutic actions. They devised techniques such as acupuncture, moxibustion and various practices that have survived to this day. In the treatise Nei King, attributed to Emperor Huang Ti (2610 AC) the aspects about life and illness are collected [7].

We know about the medicine of ancient India for the texts that make up the Veda, which began to be written about the year 1500 AC. The Ayurvedic medical system distinguished seven organic elements, with a certain resemblance to the humors theory of hippocratism. The “traditional medicine” of India had as its common objective the unification of body-mind and spirit, proclaiming that disease and health would be the result of the confluence of three main aspects of existence (doshas) [8].

It is fair to highlight the ancient medicine of Japan, Israel and the pre-Columbian American, facing the corresponding cultural exchanges, with mutual influences, reflected in current medicine. The figure of Galen of Pergamum (131–203 AD) exerted great influence on medicine until well into the Middle Ages, with its successes and errors. He was able to transmit to the present day the theory of the humors of the Hippocratics [9].

Arab medicine from the East reaches a high level in the tenth and eleventh centuries, with talents such as Rhazes, author of numerous books and articles on philosophy, physics and medicine [10]. The great Avicenna (980–1037) left some 200 works, among others, with themes of medicine such as the Canon of medicine, with a discreet galenic influence [11].

In the twelfth and thirteenth centuries, with the expansion of Islam in the Iberian Peninsula include Avenzoar, Avempace and Averroes (1126–1198), the latter author of the *Liber universalis de medicina* [12]. The Jewish doctor Cordovan Maimonides (1135–1204) with his writings on toxicology, hygiene and deontology, made great contributions to the medicine of the time [13].

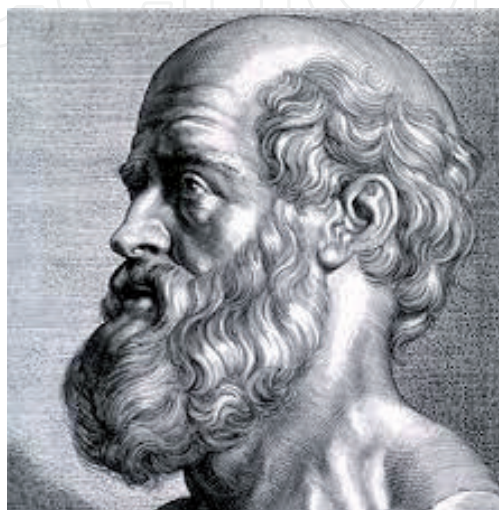


Figure 1.
Hippocrates.



Figure 2.
Sign of Taoism.

Medieval European medicine survived, without major advances, thanks to the conservative work of the monasteries, hence the other name with which it is known (monastic medicine). The first universities are created, the monasteries are hospitals and it is the religious who provide care for the most disadvantaged. The first secular medical institution is created, the School of Salerno, near the current Naples (Italy). Founded in the ninth century, it reached its maximum splendor in the tenth and thirteenth centuries [14].

The School of Translators of Toledo (Spain) contributed to the knowledge of the Greek and Arab texts of Western Europe in the Middle Ages [15]. Throughout the thirteenth and fourteenth centuries, the universities of Bologna, Paris, Oxford, Salamanca, Cambridge, Naples, Padua, Vienna, etc. arose in Europe, with the “scholastic” method as a paradigm. The “black death” that decimated the European population since 1348 was also an important economic recession.

The history of medicine considers Arnau de Vilanova (1238–1311) as the most interesting character in medieval medicine. He worked as a doctor, clergyman and ambassador of kings and popes [16]. The dissection in human cadaver was an advance in anatomical science. The great discoveries in medicine begin with the circulation of blood by William Harvey (1578–1657). Cartesianism along with the thought of Galileo opens a new system in Medicine, iatromechanics. Its initiator, not doctor, Giovanni A. Borelli (1608–1679) introduced the mechanics applied to medicine [17].

In the Renaissance stand out the panvitalists Paracelso and van Helmont. The influence of the first in current medicine was decisive, so I highlight the most significant. Theophrastus Phillippus Aureolus Bombastus von Hohenheim, better known as Paracelsus (1493–1541), has gone down in history as a doctor ahead of his time. It contributed greatly to the fact that medicine followed a more scientific path and distanced itself from the theories of the scholastics. He began “specific” treatments and is considered the initiator of iatrochemistry [18].

Clinical medicine, as it is understood today, began in Padua in the sixteenth century and then spread to the rest of Europe. It was continued in Leiden (Kyper, Silvio, and Boerhaave), Vienna, Paris, London, etc., completed with necropsy later. Thomas Sydenham (1624–1689), considered one of the most prominent clinicians of all time, known as the “English Hippocrates,” is the first to give name to diseases (morbid species). He distinguished acute diseases from chronic diseases and addressed the topic of the Hippocratic “epidemic constitution” with its own interpretation [19].

Vitalism as understood by Aristotle and the physicians of the seventeenth and eighteenth centuries with the “vital force” of Friedrich Kasimir Medikus (Von der Lebenskraft, 1774), breaks into this period of time in the medicine of the time [20]. In the eighteenth century, the first medical specialties began to appear. Thus, in 1787 there was already a specialized clinic for deliveries in Copenhagen [21]. Meanwhile, the clinical approach of medicine had been integrated with the anatomopathological one thanks to the publication and dissemination of the masterpiece by G. B. Morgagni [22].

At the doctrinal level, the ways of curing focus on the “contrary contrariis curantur” and “similia similibus curantur”, both of which are stated in Hippocratic medicine. The principle of similarity was set in motion by the German physician Samuel F. Christian Hahnemann (1755–1843), creator of homeopathy. Homeopathy, more than a method, is considered as a general medical system [23] and is currently widely disseminated worldwide.

Due to the warlike conflicts numerous wounded ones took place, fact that served so that the surgery advanced. Weapon wounds and traumatic wounds gave way to gunshot wounds. One of the most prominent characters in this field was Ambroise Paré (1510–1590). Paré began his career as an apprentice surgeon-barber, a name by which a lower class of surgeons was known. The latter were below the so-called long-gown surgeons, who studied at the San Cosme School, knew the classical languages and writings of Galen. Barber surgeons were considered manual workers who, in addition to treating wounds, cut their hair, shaved and performed bloodletting. His contributions to the surgery on ligation of arteries, treatment of wounds by firearm, intrauterine turning of the child with breech presentation, and design of devices (trusses, etc.), made him be awarded the doctorate in medicine and out doctor of camera. He left several writings in the vernacular [24]. The Italian version of Paré was Bartolomeo Maggi (1516–1552), doctor of the pontifical army, who participated in the site of Mirandola with his colleague Giovanni Francesco Rota. His most important work is a treatise on gunshot wounds [25].

In the early sixteenth century sangria in Europe was still used, along with the purge, extending until the nineteenth century [26].

Dietetics, already initiated by the Hippocratics and continued by Galen, broke out in the sixteenth century with Lobera de Ávila, Luigi Cornaro, Tissot and Hufeland, the latter with his work *Makrobiotic or art of prolonging life* (1796) [27]. Hydrotherapy emerges enthusiastically in several European countries almost simultaneously, with the help of empiricists (Priesnitz, Kuhne, Kneipp, etc.) and doctors (Floyer, Hahn, etc.) [28]. Francois Magendi (1738–1855) founded in 1830 the first laboratory of experimental medical physiology in France. His disciple Claudius Bernard (1813–1878) surpassed his master by expressing his experiences in the book *Introduction to the study of experimental medicine* published in 1865. He has the concept of internal environment, which later would serve Haldane and Cannon to devise the term homeostasis [29]. The vaccines are preceded by Edward Jenner (1749–1823), with smallpox inoculation [30]. Medical Microbiology bases its findings on the findings of Pasteur (1822–1895), Lister (antisepsis) and Koch (1843–1910) [31]. At the same time, Immunology was developed with Metchnikoff (1884–1892), Ehrlich, etc. [32]. Biochemistry initiated in France is consolidated in Germany by Liebig (1803–1873) [33]. The X-rays are perfected and applied in the diagnosis from 1895 by Röntgen, assuming a breakthrough in the diagnosis of bone lesions [34].

At the end of the nineteenth century Wundt (1832–1920) inaugurated the first laboratory of experimental psychology in Leipzig (Germany). From here, several theories would emerge, some of them valid, to explain the psyche [35].

The advances in physics with Einstein, the spouses of Curie and Planck, to mention only the most significant, allowed to create the theoretical basis for the diagnostic and therapeutic advancement based on physics [36]. Genetics makes its appearance in the hands of Galton (1822–1911), Mendel (1822–1884) and Weismann (1834–1914) [37]. The start-up of the microscope, with its different variants, destroyed the fibrillar theory of past centuries and begins the era of cellular theory. In consonance with this is born the cellular pathology of Rudolph Virchow (1821–1902) [38].

2.2 The rise of pharmacological medicine

Although the Hippocratic doctors of the fourth century BC prescribed medicinal plants and some other potion, it was not until the emergence of the great doctors who exercised for the Roman Empire, which brought together the knowledge about the plant species applied in the medicine of the time. One of the most famous doctors in this regard was Dioscorides. Pedacio Dioscorides, born in Anazarbus, in Asia Minor, was a military surgeon of the Roman armies, in the time of Nero. He wrote “De Materia Medica” which served as a pharmacopeia manual until the Renaissance, this work being considered the forerunner of modern pharmacology [39].

During the Middle Ages, except for contributions from the Arab world, there were hardly any advances in therapy. Only the amanuenses of the monasteries, through copies of books, were the transmitters of medical knowledge. In 1085, the conquest of Toledo in Spain by Alfonso VI made it possible to combine ancient knowledge through the translation of classical texts. Through the collaboration of Arabs, Jews and Castilians, it was possible to translate philosophical, theological, astronomical, medical and other sciences texts into Spanish. Schools of translators were founded in Toledo, Seville and Murcia. The interpreters of countries like England, Germany and Italy took this knowledge to their respective countries, being an incentive for the foundation of several universities [40].

It would be necessary to reach the Renaissance with Paracelsus, the initiator of iatrochemistry, to advance in the treatment of diseases with chemical substances. The iatrochemistry, devoid of panvitalism and adapted to the mechanicism of the moment, survived until the seventeenth century. It is considered a precursor of current Pharmacology and Biochemistry [41]. Practically the treatment of diseases with plants with medicinal properties was one of the few options with which it was counted for centuries, apart from the knowledge about surgery that emerged. The term Phytotherapy was coined by Leclerc in 1913 [42]. In the university studies of Pharmacy is taught in Botany and Pharmacognosy, being important the number of investigations that are realized anywhere in the world in this matter.

In the first third of the twentieth century, as a result of the scientific-technical discoveries applied in the health sciences, new drugs are discovered that can cope with deadly and/or invalidating diseases such as certain infections. At first many of the drugs used came from the Plant Kingdom, such as the *Salix* genera where salicylic acid was obtained, alkaloids of the poppy (*Papaver somniferum*), digitalis obtained from various *Digitalis* species (*D. purpurea*, *D. lanata*, etc.), colchicine obtained from *Colchicum autumnale* used in the treatment of gout, etc., others were obtained from fungi and bacteria such as antibiotics. Later, in the course of the two major world wars progress was made in surgery, pharmacology and radiotherapy. Currently most of the drugs are synthetic or are manufactured by genetically manipulated living beings.

Current medicine prevents, treats, restores, cures and rehabilitates numerous pathologies that were previously invalidating and/or fatal. Gone are many of the

procedures that did not surpass the scientific method for their validation as the homeopathic system.

2.3 Medicine there is only one

“Medicine there is only one” is a phrase that has been devoted to time. The Spanish scientist José Miguel Mulet adds “and is effective when he has a scientific evidence behind it” [43].

Currently in the world much of the population does not have a health system that can meet the health needs of the inhabitants of that country, despite being a recognized right in the Universal Declaration of Human Rights (U.D.H.R, article 25.1). Many populations of the Third World must make use of the remedies offered by nature to deal with their diseases, using the experience transmitted for generations.

Although this inequality is not acceptable from the ethical point of view, it has a positive vision provided that nature is not frazzled, because they use local resources, with greater or lesser success, and do not use pharmacological remedies in the style of rich countries, which use many resources in their production, they are abused, they produce numerous secondary effects and many of them do not cure, maintaining the chronicity until advanced ages, with the consequent expense in human and material resources.

In many of the countries of the planet, integrative medicine is used, according to David Rakel, founder and director of the Department of Integrative Medicine at the University of Wisconsin (USA), “is oriented to the restitution of health and highlights the importance of the relationship between the doctor and the patient as a central aspect. It focuses on less invasive, less toxic and less expensive methods to try to facilitate health by integrating both conventional treatment modalities and complementary modalities. Its recommendations are based on an understanding of the physical, emotional, psychological and spiritual aspects of the human being” [44].

The World Health Organization, through its strategy on traditional medicine 2014–2023 of 2013 [45] and resolution WHA.67a of 2014 [46], urged member countries to use the resources of traditional medicine and complementary, that will be investigated so that these resources enjoy efficacy and safety and that they are incorporated into the national health system, making a follow-up for its evaluation.

2.4 The challenges in health in the twenty-first century

High infant mortality in developing countries continues to be the great scourge worldwide, in contrast to the increase in life expectancy in developed countries [47]. The unequal distribution of wealth has a negative impact on education, and the lack of it is the gateway to all kinds of ills. Economic poverty is associated with crime, unemployment, precarious housing and increased morbidity. On the contrary, countries with a higher economic level, with a national public health system, private or mixed, with the predominant medical paradigm, experience an increase in life expectancy, with an increase in chronic diseases that, with they often reduce the quality of life and entail high human and material costs, seriously endangering their economic sustainability [48].

The Lalonde report on the health determinants of 1974 made it clear that what influences our state of health the most is the lifestyle we adopt and, what is less, health care, however, the greatest expense fell on the latter [49]. In 1978, the meeting of health experts from Alma-Ata in Kazakhstan (which belonged at that time to the former Soviet Union), established Primary Health Care as the ideal framework

for prevention and health promotion [50]. In successive international conferences on health (see **Table 1**) it has been tried to carry out these purposes, until arriving at the Astana meeting in 2018, which took stock of these 40 years.

In September 2000, the leaders of the world met at the United Nations Headquarters in New York and adopted the Millennium Declaration, committing their countries to a new global alliance to reduce the levels of extreme poverty and establishing a series of objectives with goals and indicators, known as the Millennium Development Goals (MDGs) until the 2015 period. The MDGs sought developing countries to take new measures and join efforts in the fight against poverty, illiteracy, hunger, lack of education, gender inequality, infant and maternal mortality, HIV infection and environmental degradation. Other objectives called for developed countries to adopt measures to relieve debt, increase assistance to developing countries and promote a fairer market [51]. In 2015, the States agreed on a new agenda for development, that of 2030 [52].

The 2030 Development Agenda is a plan of action in favor of people, the planet and prosperity. It also aims to strengthen universal peace within a broader concept of freedom. The adoption of the SDGs represented a historic opportunity to unite countries and people from all over the world and to take new paths to the future. The SDGs are formulated to eradicate poverty, promote prosperity and well-being for all, protect the environment and tackle global climate change. The Astana meeting in Kazakhstan (formerly Alma-Ata) of 2018 had objectives to reinforce Primary Health Care (PHC), achieve universal health coverage and sustainable development objectives. In his point V he stressed that we had to work to make PHC sustainable. As in the Shanghai conference, it was insisted on empowering people and the community in its VI point.

Thus, the prevention of diseases and the promotion of health, is to rewrite the functions of PHC (health centers), currently focused on the resolution of problems with the use of drugs, causing iatrogenic and high health expenditure, jeopardizing its economic sustainability [53]. It is necessary to reshape the PHC focusing on the individualization, the transmission of positive information, the modification of unhealthy behavior, the medical advice, all within a procedure of humanization of health care, something deteriorated since the arrival of technology and the economic crisis.

Conference	Date	Theme/objectives/performances
Ottawa	1986	The promotion of health in the general context of globalization
Adelaide	1988	Formulation of healthy policies
Sundsvall	1991	Creating enabling environments
Yakarta	1997	Capacity building for health promotion
México	2000	Capacity building for health promotion
Bangkok	2005	The promotion of health in the general context of globalization
Nairobi	2009	Actions to reduce the gap between the evidence and its concrete application in the development of health
Helsinki	2013	Health in all policies
Shanghai	2016	Declaration of Shanghai (2030 agenda for sustainable development)
Astaná	2018	Review of the 40 years of Alma-Ata

Compiled by A. Ursa. WHO Global Health Promotion Conferences.

Table 1.
International conferences on health promotion.

2.5 Medicine and climate change

The Intergovernmental Panel on Climate Change (IPCC) was created in 1988 by the World Meteorological Organization (WMO) and the United Nations (UN) in its United Nations Environment Program (UNEP), with the objective of providing an objective source of scientific information. The main activity of the IPCC is to publish special reports on issues relevant to the implementation of the United Nations Framework Convention on Climate Change (UNFCCC). The IPCC has published five comprehensive reports examining the latest climate evidence, as well as numerous special reports on particular issues.

In 1997, the Kyoto Protocol on climate change was drafted with the objective of reducing emissions of the main greenhouse gases such as carbon dioxide, methane, nitrous oxide, sulfur hexafluoride, hydrofluorocarbons and perfluorocarbons [54]. The successive meetings of climate change experts and some of their conclusions appear in **Table 2**.

Throughout these years there has been a slow progress on compliance with the agreements on the reduction of greenhouse gases. The most industrialized countries put obstacles to their accession, placing their own interests before the generals. Objective 13 of the 2030 Agenda for Sustainable Development requires urgent actions to combat climate change and its impacts and is intrinsically related to the other 16 objectives of the Agenda.

Although global warming may have some beneficial effects, such as lower winter mortality in temperate regions and an increase in food production in certain areas, the overall health effects are likely to be very damaging [54]. Climate change influences the social and environmental determinants of health, such as clean air, clean water, sufficient food and safe housing. The countries that have contributed least to greenhouse gas emissions will be the first and most affected by climate change [55].

The emergence of extreme downpours with floods, alternating with droughts is likely to cause famine and increase morbidity and mortality in countries with fewer

Meetings	Date	Agreements
Río de Janeiro	1992	Creation of the UNFCCC
Kyoto (Japan)	1997	Kyoto Protocol with binding legal objectives
Balí (Indonesia)	2007	Road map of Bali (post-Kyoto)
Copenhagen	2009	Agreement de Copenhagen
Cancún	2010	Reactivation of the greenhouse gas reduction pact del
Durban	2011	Commitment to extend the Kyoto Protocol
Doha (Qatar)	2012	2020 climate change agreement
Varsovia	2013	Warsaw International Mechanism
Perú	2014	Commitment to seal the Paris Agreement
París	2015	Paris Agreement
Marrakech	2016	Declaration of support for the Paris Agreement
Bonn	2017	Its objective is to accelerate the fulfillment of the objectives of the Paris Agreement
Katowice	2018	Katowice book
Madrid	2019	Agreement, called “Chile-Madrid to Act”

Compiled by A. Ursa of the author Vengoechea, of the Friedrich Ebert Foundation, 2012.

Table 2.
Meetings on climate change/summits of the earth.

resources [56]. There will be an important transfer of climate refugees between countries that may trigger conflicts of various kinds. Heat waves will cause more deaths, especially at extreme ages. Climate change could alter the geographical distribution of disease vectors, such as insects that transmit malaria or dengue [57]. It is expected that, between 2030 and 2050, climate change will cause an additional 250,000 deaths each year, due to malnutrition, malaria, diarrhea and heat stress. It is estimated that the cost of direct damage to health (that is, excluding costs in the determinant sectors for health, such as agriculture and water and sanitation) is between 2000 and 4000 million US dollars from here 2030 [58].

2.6 The change of model as a solution to climate change

For more than 200 years, the temperature of the Earth has been going upward due to human activity. The Earth ecosystem is sensitive to this progressive rise in temperature and is experiencing damaging effects on seas, the mainland and the atmosphere. The consequences that we face are already felt. The international bodies meet to seek solutions for years, but they are insufficient and the most powerful countries, which pollute the most, do not adopt the resolutions so that, supposedly, they do not influence their economy.

As international consensus measures, the change in the energy model is presented, with the progressive abandonment of fossil fuel burning and replacement with renewable energies. The proposed deadlines are not very ambitious and the implementation times will have to be shortened, because the forecasts fall short again and again. The feeding model established in the last decades based on animal protein results in poorer health, with an increase in type 2 diabetes mellitus and cardiovascular diseases [59].

The cattle and sheep farming, through the emission of methane in its digestive process, contributes a good amount to climate change. The other major emitter is transport by land, sea and air. A scarce resource is water. One kilogram of beef consumes approximately 20,000 L of water. It is deforested in ancestral forests to plant soy and corn, to produce feed for cattle [60].

However, meat consumption is increasing worldwide, especially in emerging countries (China, North Africa, etc.). Experts advise to modify the diet to be healthier and reduce the environmental impact, reducing the consumption of meat and increasing the legumes, vegetables and fruits [61]. Returning to the Alma-Ata model and ratified in Astana in 2018, primary health care must insist on the prevention and promotion of health, empowering the user, advising the adoption of a healthy lifestyle and raising awareness of the impact that they have on our actions in climate change [62].

For broader coverage of the health system, international organizations should make proposals to the most disadvantaged countries to adopt cheap and proven public health interventions to control climate-sensitive diseases, in line with the achievement of the Goals of Millennium development related to health (currently sustainable development goals) [63]. Climate change is a price we are paying for misguided global policies. The achievement of economic wealth prevailed over the protection of the health of the planet and of the most vulnerable sectors of society. We must insist on the implementation of the resolutions adopted by international organizations in order to reduce the global impact of climate change.

3. Conclusions

The pillars of well-being that have been achieved in many western countries can be threatened by different scenarios, such as climate change, armed conflicts,

trade wars, population aging or migratory flows caused by the above circumstances. The solutions to these problems include the adoption of international agreements that reduce greenhouse gas emissions, accelerate the energy transition with the use of renewable energy, reduce meat consumption, improve health promotion at the first level (primary health care) and the distribution of the resources offered by the Earth is improved, with a more sustainable management. Following the recommendations of the World Health Organization, alternative and complementary medicines should be promoted and resources allocated to research to those who enjoy scientific evidence, in order to cover greater coverage of the population both in Western countries and in those countries with a poor health system, without giving up the current scientific-technical medicine.

Abbreviations

IPCC	Intergovernmental Panel on Climate Change
MDG	Millennium Development Goals (Millennium Declaration)
SDG	Sustainable development goals
UN	Organization of the United Nations
UNEP	United Nations Environment Program
UNFCCC	United Nations Framework Convention on Climate Change
WHO	World Health Organization
WMO	World Meteorological Organization
PHC	Primary health care

Author details

Andrés J. Ursa Herguedas^{1,2,3}


1 Junta de Castilla y León, Spain

2 Illustrious Academy of Health Sciences Ramón y Cajal, Madrid, Spain

3 Institute of Integrative Medicine, Valladolid, Spain

*Address all correspondence to: ajursa@educa.jcyl.es

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References

- [1] Carasa P. For a social history of the city. Urbanization, pauperism and assistance. In: Bonamusa F, Serrallonga J, editors. *The Urban Society*. Barcelona: Association of Contemporary History; 1994. pp. 23-55
- [2] Hans-Martin F, et al. *Climate Change, Impacts and Vulnerability in Europe 2016*. Vol. 1. Luxembourg: European Environment Agency; 2017. DOI: 10.2800/534806
- [3] Latest review of science reveals ocean in critical state from cumulative impacts. In: Rogers A, Laffoley D, editors. *International Programme on the State of the Ocean*. London; 2013. Available from: <http://www.sciencedirect.com/science/journal/0025326X/74>
- [4] Ferlay J et al. *Cancer Incidence and Mortality Worldwide*. Vol. 11. Lyon, France: International Center for Cancer Research; 2013. DOI: 10.1002/ijc.29210
- [5] Laín Entralgo P. *Hippocratic Medicine*. 1st ed. Madrid: University Alliance; 1982. p. 19. Available from: <http://www.cervantesvirtual.com/nd/ark:/59851/bmc99027>
- [6] Laín Entralgo P. *History of Medicine*. Reprint. Salvat Editores. Barcelona: S.A.; 1978. p. 17. Available from: <http://www.cervantesvirtual.com/nd/ark:/59851/bmcqj991>
- [7] Álvarez SE. *Acupuncture Treatise*. PAR. Madrid: Graphic Arts S.A.; 1983. p. 33. ISBN-13: 978-8430089031
- [8] Caldecott T. *Ayurveda: The Divine Science of Life*. Edimburg U.K.: Elsevier Health Sciences; 2006. ISBN: 9780723434108
- [9] Stone Potter D, Mattingly DJ. *Life, Death and Entertainment in the Roman Empire*. In: Potters DS, Mattingley DJ, editors. *Ann Arbor EEUU, USA: University of Michigan Press*; 1999. p. 63. ISBN: 0-472-08568-9
- [10] Abū Bakr Muhammad ibn Zakariya al Razi. *The Book of Spiritual Medicine*. Translation of Tornero. In: Trotta, editor. *Trotta Police. Leaflets from the East*. Madrid; 2004
- [11] Gutas D. *Avicenna and the Aristotelian Tradition: Introduction to Reading Avicenna's Philosophical Works*. Leiden: Brill; 1988. DOI: 10.15808/Nazariyat.1.2.D0016
- [12] Hernández MC, ibn Rushd (Averroes) A-l-W M. *Life, Work, Thought, Influence*. 2nd ed. Córdoba: Caja Sur Publications; 1997. ISSN 1136-8071
- [13] Aguinis M. Maimónides. Buenos Aires: Jewish People's Library; 1976
- [14] Capparoni P. *Magistri Salernitani Nondum Cogniti. A Contribution to the History of the Medical School of Salerno*. Londres: Bale& Danielsson; 1923
- [15] González PA. Don Ramón and the Translators of Toledo. In: Labor, editor. *Madrid*; 1942
- [16] Paniagua Arellano JA. *Studies and notes on Arnau de Vilanova*. Madrid: Superior Council of Scientific Investigations (CSIC); 1963
- [17] Borelli BG. *Life Series of Famous Doctors and Naturalists*. Trieste; 1947
- [18] Riviere P. *Paracelso*. Barcelona: Ed De Vecchi; 2001. ISBN: 978-84-315-2642-9
- [19] Kushner H., Cortes D.: *Sydenham's chorea*. In: Koehler Peter J. u_a (Hrsg): *Neurological Eponyms*. Oxford: Oxford University Press; 2000. ISBN: 0-19-513366-8

- [20] Coulston Gillispie C, Lawrence HF, Koertge N. In: Gale T, editor. *Complete Dictionary of Scientific Biography*. Detroit, Michigan: Charles Scribner's Sons; 2008. ISBN: 9780684315591 0684315599
- [21] Demangeon JB. *Historical Painting of a Triple Establishment Gathered in a Single Hospice in Copenhagen*. Paris; año VII. 1871
- [22] Grandjean de Fouchy JP. In praise of M. Morgagni. In: *History of the Royal Academy of Sciences*. Vol. 1774. Paris: Imprimerie Royale; 1771. pp. 131-142
- [23] Hahnemann S. *The Organon of the Healing Art*. 6th ed. Barcelona, Spain: Homeopathic Institute of Catalonia; 2012. ISBN: 9788461569229
- [24] Berriot-Salvadore E. The discourse of medicine and science. In: *History of Women*. Vol. 3. From the Renaissance to the Modern Age. Buenos Aires: Santillana, S.A., Taurus minor; 1993. pp. 385-431
- [25] Burci C. Summarized History of Italian Surgery from its Beginning until the Nineteenth Century. Florencia; 1876. pp. 43-44
- [26] Figueiredo BG. Bleeders and surgeons: Medical practitioners in nineteenth century Minas Gerais. *History, Sciences, Health-Manguinhos*. 1999;6(2):277-291. DOI: 10.1590/S0104-59701999000300003
- [27] Salas-Salvado J et al. *Food and Nutrition throughout History*. Glosa Ed. Barcelona, Spain; 2005
- [28] Rodríguez PH. *Medical Hydrology Manual*. Barcelona (Spain): Reus Eds; 1925
- [29] Cannon WB. *The Wisdom of the Body*. New York: Norton & Company, Inc.; 1932
- [30] Bloch H. Edward Jenner (1749-1823). The history and effects of smallpox, inoculation, and vaccination. *American Journal of Diseases of Children*. 1993;147(7):772-774. ISSN: 0002-922X
- [31] Collard P. *The Development of Microbiology*. UK: Cambridge University Press; 1976
- [32] Schmalstieg FC Jr, Goldman AS. Ilya Ilich Metchnikoff (1845-1915) and Paul Ehrlich (1854-1915): The centennial of the 1908 Nobel prize in physiology or medicine. *Journal of Medical Biography*. 2008;16(2):96-103. DOI: 10.1258/jmb.2008.008006
- [33] Córdón F. *History of Biochemistry*. Madrid (Spain): Compañía literaria S.L.; 1997
- [34] Glasser O. *Wilhelm Conrad Röntgen and the Early History of the Roentgen Rays*. Londres (UK): John Bale, Sons and Danielsson Ltd.; 1933. ISBN: 0930405226
- [35] Bringmann U. The foundation of the Institute of Experimental Psychology at the University of Leipzig. *Psychological Research*. 1990;42:13
- [36] Planck M. *Scientific Autobiography and Latest Writings*. In: Nivola, editor. New York, USA; 2000. ISBN: 9780806530758
- [37] Dunn LC. *A Short History of Genetics*. Nueva York: McGraw-Hill; 1965
- [38] Virchow RLK. *Cellular Pathology*. 1859 special ed. London, UK: John Churchill; 1978
- [39] Font QP. *Medicinal Plants. The Dioscorides Renewed*. 5th ed. Barcelona: Labor S.A.; 1979
- [40] Vélez LP. On the notion, meaning and importance of the Toledo school. *Disputatio Philosophical Research Bulletin*. 2017;6(7):537-579

- [41] Conrad L, Nutton V, et al. *The Western Medical Traditions: 800 BC to AD 1800*. Cambridge, UK: Cambridge University Press; 1995
- [42] Leclerc H. *Precise Phytotherapy: Therapeutic Trial by French Plants*. Paris, France: Masson; 1983. Paperback
- [43] Mulet Salort JM. *Natural Products, What a Scam! Pamplona (Navarra) Spain: Laetoli*; 2011. ISBN: 9788492422289
- [44] Rakel D. *Integrative Medicine*. 2nd ed. Barcelona: Elsevier Masson; 2009. p. 7. ISBN: 987-84-458-1911-1
- [45] Resolution WHA 62.13. *Traditional Medicine*; 2009
- [46] Resolution WHA 67.18. *Traditional Medicine*; 2014
- [47] Dhrifi A. Expenses in health, economic growth and infant mortality: History of developed and developing countries. *CEPAL Review*. 2018;**125**:69-91
- [48] Foreman K et al. Prognosis of life expectancy, years of life lost and mortality from all causes and specific causes for 250 causes of death: Reference and alternative scenarios for 2016-40 for 195 countries and territories using data from the global study of burden of diseases. *The Lancet*. 2018;**392**:2052-2090. DOI: 10.1016/S0140-6736(18)31694-5
- [49] Lalonde M. *A New Perspectives on the Health of Canadians*. Ottawa, Canadá: Government of Canada; 1974. Available from: <http://www.phac-aspc.gc.ca/ph-sp/pdf/perspect-eng.pdf>
- [50] International Conference on Primary Health Care. *Alma-Ata: World Health Organization (WHO), UNICEF*; 1978. ISBN: 92 4 354135 8
- [51] United Nations Millennium Declaration, 55/2. New York; 2000. Available from: <http://undocs.org/A/RES/55/2>
- [52] United Nations. *Sustainable Development Objectives*. New York: United Nations, General Assembly; 2015. Available from: <https://onu.org.gt/objetivos-de-desarrollo/>
- [53] Gervás J et al. (SESPAS report 2012). Health expenditure on primary care in Spain: Not enough to provide attractive services to patients and health professionals. *Medical Gazette*. 2012;**26**(S1):36-40
- [54] Kyoto Protocol, United Nations Framework Convention on Climate Change. New York: UN; 1998
- [55] Intergovernmental Panel on Climate Change (IPCC). Summary for policy makers. In: Edenhofer O, Pichs-Madruga R, Sokona Y, Farahani E, Kadner S, Seyboth K, Adler A, et al. editors. *Climate Change 2014: Mitigation of Climate Change. Contribution of Working Group III to the Fifth Assessment Report of the IPCC*. Cambridge, United Kingdom and New York, NY, USA: Cambridge University Press; 2014. UU. Chapter 11. ISBN: 978-1-107-05821-7
- [56] McMichael A, Campbell-Lendrum D, Kovats R, et al. Climate change. In: Ezzati M, Lopez A, Rodgers A, Murray C, dir. *Publ. Comparative Quantification of Health Risks: Global and Regional Burden of Disease Due to Selected Major Risk Factors*. WHO (Geneva). 2004. DOI: doi:10.1016/S0140-6736(09)61993-0
- [57] Ebi KL, Boven K. Extreme events as sources of health vulnerability: Drought as an example. *Weather and Climate Extremes*. 2016;**11**:95-102. ISBN: 978-1-107-02506-6
- [58] WHO. *Special Report COP24: Health and Climate Change*.

Geneva, Switzerland; 2018. ISBN:
978-92-4-151497-2

[59] Micha R et al. Red and processed meat consumption and risk of incident coronary heart disease, stroke and diabetes mellitus: A systematic review and metaanalysis. *The Circulation*. 2010;**121**(21):2271-2283. DOI: 10.1161/CIRCULATIONAHA.109.924977

[60] Steinfeld H, Gerber P, Wassenaar T, Castel V, Rosales M, de Haan C. *Livestock's Long Shadow. Environmental Issues and Options*. Roma: FAO; 2006. ISBN: 978-92-5-105571-7

[61] Rose D, Heller MC, Roberto CA. Position of the Society for Education and Nutritional Behavior: The importance of including environmental sustainability in dietary guidance. *Journal of Nutrition Education and Behavior*. 2019;**51**(1):3-15. DOI: 10.1016/j.jneb.2018.07.006

[62] Declaration of Astana. In: *Global Conference on Primary Health Care*; 25 and 26 October, 2018; Astana (Kazakhstan). 2018. Available from: <https://bit.ly/2Rm8TTv>

[63] Millennium Declaration 55/2. New York: UN; 2000